

XXXI. *On the Use of the Pedes scansorii of Birds; in a Letter to the Rev. William Kirby, F.R.S. and L.S. By the Rev. Revett Sheppard, F.L.S.*

Read June 16, 1818.

MY DEAR SIR,

HAPPENING a few days since to take up Ray's *Wisdom of God in the Works of the Creation*, I was particularly struck with the passage where, speaking of the Woodpecker tribe, he says, "Their toes stand two forwards, two backwards; which disposition (as Aldrovandus well notes) Nature, or rather the wisdom of the Creator, hath granted to Woodpeckers, because it is very convenient for the climbing of trees."

The attempt to prove this assertion, adopted by so many and able naturalists, to be altogether unfounded, must appear to savour of presumption in one who has so little of the philosopher about him: nevertheless, I hope to convince you that such disposition of the toes in the Woodpecker tribe was intended by the Author of Nature for a very different, though equally wise purpose. I know of but six genera, viz. *Psittacus*, *Cuculus*, *Picus*, *Ramphastos*, *Trogon*, *Bucco*, that are furnished *pedibus scansoriis*, i. e. with two toes before and two behind; and of this number I am acquainted with the manners of the three first only.

To begin with *Cuculus*:—I speak only of our common species: Here is a bird furnished with two toes before and two behind, and yet is actually never known to climb at all; a convincing proof that such conformation does not necessarily bring with it the power

of climbing; more especially when we consider that the Nuthatch (*Sitta europæa*) and Tree-creeper (*Certhia familiaris*) have their toes placed in the usual manner, and yet run up and down trees with as much facility as the Woodpeckers. The use of the *pedes scansorii**, then, to the Cuckoo (as they evidently, in this case, conduce not to climbing,) I judge to be this: It is well known that this bird will oftentimes sit by the half-hour together on the bough of a tree vociferating its loud and pleasing note; in doing this it sits remarkably forward, and appears in constant agitation, continually moving its body up and down with great elegance: now, as it sits so forward whilst using this exertion, it would be liable to lose its balance and quit its hold, had it only one toe behind; whereas, by the contrivance of two, it is enabled strongly to adhere to the branch.

Psittacus also has the *pedes scansorii*, and is actually a climbing genus; yet does not this conformation in my opinion in any manner conduce thereto. To say that Parrots assist themselves with their beaks in climbing, would not argue the *pedes scansorii* to be of no utility. Their real use to this genus seems to be not only to grasp their food (for the foot of the Parrot serves the purpose of a hand in that respect), but to enable them to step securely from one branch to another, and likewise to hang suspended, as they often do; in which case the two toes before and two behind certainly give stability to their hold.

With respect to the *Pici*, rather a clumsy tribe, the very stiff feathers in the tail are of material service to prop them up in the act of climbing: not so the *pedes scansorii*, for the Nuthatch without them runs up trees equally well. Of what use then can these be to the Woodpecker? I answer, that in boring trees, (in which

* I think a more appropriate term might be adopted for this peculiar conformation; and for this purpose I take the liberty of suggesting the word *comprehensorii*.

occupation the bird is often engaged for a considerable length of time), its weight is thrown backward, and thus the supply of two toes behind is rendered extremely necessary for its support.

What makes me think the wise Author of Nature had this end principally in view is, that the Nuthatch, from the want of this conformation, is, when breaking nuts, under the necessity of sitting with its head downwards. It may be alleged that its flexible tail compels it to this position; but, as I have before observed, it runs up trees with equal or greater facility than the Woodpecker, notwithstanding that disadvantage.

It would be a curious circumstance, and a conclusive argument in my favour, should it ever be ascertained that the three-toed Woodpecker (*Picus tridactylus**), which has only one toe behind, bores trees in the attitude assumed by the Nuthatch when breaking nuts.

I have now brought this letter, which I fear has tired your patience, to a conclusion; but as it is upon a subject hitherto not sufficiently examined into, you may possibly think it worthy of being communicated to our scientific brethren.

I am, &c.

Wrabness Parsonage,
April 15, 1818.

REVETT SHEPPARD.

* Linnæus, in his description of the *Picus tridactylus*, says, "Europæus vertice flavo, Americanus rubro est." It is worthy of observation, that a fine specimen, brought by my brother Edmund Sheppard, Esq., of the Royal Artillery, (whose assiduity in collecting subjects of natural history when abroad, entitles him to great credit,) from Drummond's Island, in Lake Huron, Upper Canada, has the *crest*, like the European species, of a *bright yellow*.